```
SYSTEM:OS  - DIALOG One[redacted]rch
  File   2:INSPEC  1969-2001/Jun W4
         (c) 2001 Institution of Electrical Engineers
  File   8:Ei Compendex(R)  1970-2001/Jun W4
         (c) 2001 Engineering Info. Inc.
*File   8: New price changes effective May 1, 2001.See Help Rates8.
Truncate CC codes for complete retrieval.UDs were adjusted.
  File 103:Energy SciTec  1974-2001/Jun B1
         (c) 2001 Contains copyrighted material
*File 103: For updates please see Help News103.
For access restrictions, see HELP RESTRICT.
  File 108:AEROSPACE DATABASE  1962-2001/JUN
         (c) 2001 AIAA
*File 108: For update information please see Help News108.
  File 144:Pascal  1973-2001/Jun W4
         (c) 2001 INIST/CNRS

      Set  Items  Description
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>>>One or more prefixes are unsupported
>>>  or undefined in one or more files.
Processing
Processing
Processing
>>>File 144 processing for PD=  : PD=960422
>>>    started at PD=18019 stopped at PD=198311198312
Processing
Processing
        10850646  PD<=960422
        26751458  PY<=1996
           61558  CVD
             607  PCVD
             877  PACVD
            9695  PECVD
             688  APCVD
            5168  LPCVD
         2437626  CHEMICAL
          446280  DEPOSITION
          104753  CHEMICAL(2W)DEPOSITION
          646222  ATOMIC
         1180291  OXYGEN
            9175  ATOMIC(W)OXYGEN
         1180291  OXYGEN
          223534  RADICAL?
            2497  OXYGEN(W)RADICAL?
          279113  ULTRAVIOLET
          262517  UV
          114519  MERCURY
           58558  LAMP?
            1940  MERCURY(W)LAMP?
      S1       9  (PD<=960422 OR PY<=1996) AND (CVD OR PCVD OR PACVD OR
                  PECVD OR APCVD OR LPCVD OR CHEMICAL(2W)DEPOSITION) AND
                  (ATOMIC(W)OXYGEN OR OXYGEN(W)RADICAL?) AND (ULTRAVIOLET
                  OR UV OR MERCURY(W)LAMP?)
?rd
...completed examining records
      S2       8  RD (unique items)
?t s2/full/all

 2/9/1      (Item 1 from file: 2)
DIALOG(R)File   2:INSPEC
(c) 2001 Institution of Electrical Engineers. All rts. reserv.

03938716   INSPEC Abstract Number: A91104151, B91048788
 Title: Wide area windowless disk plasma lamp of uniform intensity for use
in microelectronic film processing
  Author(s): Yu, Z.; Sheng, T.Y.; Pihlstrom, B.; Luo, Z.; Collins, G.J.
```

Author Affiliation: t. of Electr. Eng., Colorado [redacted]ate Univ., Fort Collins, CO, USA
Journal: Journal of Vacuum Science & Technology B (Microelectronics Processing and Phenomena) vol.9, no.2, pt.1 p.348-52
Publication Date: March-April 1991 Country of Publication: USA
CODEN: JVTBD9 ISSN: 0734-211X
U.S. Copyright Clearance Center Code: 0734-211X/91/020348-05$01.00
Conference Title: Workshop on High-Density Plasma Techniques and Processes for Integrated Circuit Fabrication
Conference Sponsor: American Vacuum Soc
Conference Date: 11-12 Sept. 1990 Conference Location: Burlingame, CA, USA
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Applications (A); New Developments (N); Practical (P); Experimental (X)

Abstract: A wide area windowless plasma disk excited by a soft vacuum electron beam provides a wide area uniform source of vacuum **ultraviolet** (VUV) photons as well as atomic radicals. Hydrogen and oxygen when excited by the soft vacuum electron beam, emit strong atomic resonance radiation at 121.6 and 130 nm, respectively; in fact up to 8% of the total applied discharge power is emitted as VUV photons. The spatial uniformity of the atomic VUV resonance radiation approaches 6% across a disk 19 cm in diameter. The density of **atomic oxygen** species generated in the plasma disk has also been experimentally determined using an established polymer film etch rate method as well as with a conventional silver thin film sensor. The authors employ the disk plasma in a windowless configuration to achieve lower temperature **chemical** vapor **deposition** (**CVD**) than conventional thermal **CVD** . The VUV photon flux as well as the radical and excited atomic gas species emitted from the lamp can assist dissociation of feedstock reactant gases as well as assist heterogeneous surface reactions and increase surface mobility of absorbed species allowing for lower temperature **CVD** . Thin films of an aluminium nitride and hydrogenated amorphous silicon have been deposited at temperature between 100-400 degrees C. The deposited films show improvement over other plasma and photo-assisted **CVD** processes in the film quality achieved, the area covered, the substrate temperature required, and the maximum deposition rates that are possible. In situ generation of arsine (AsH/sub 3/) and unsaturated arsenic hydrides AsH/sub x/ (x<or=2) have also been achieved by placing elemental arsenic in an environment rich in atomic hydrogen created from the disk-plasma source. (13 Refs)
Subfile: A B
Descriptors: aluminium compounds; discharge lamps; hydrogen; photodissociation; plasma **CVD** ; plasma **CVD** coatings; semiconductors; silicon
Identifiers: low temperature **CVD** ; disk plasma lamp; uniform intensity; microelectronic film processing; wide area windowless plasma disk; soft vacuum electron beam; wide area uniform source of vacuum **ultraviolet** ; atomic radicals; atomic resonance radiation; spatial uniformity; atomic VUV resonance radiation; polymer film etch rate method; excited atomic gas species; film quality; substrate temperature; deposition rates; 121.6 nm; 130 nm; 8 percent; 19 cm; 100 to 400 C; atomic H; Si:H deposition; atomic O ; AsH/sub 3/ generation; AlN deposition
Class Codes: A8115H (Chemical vapour deposition); A6855 (Thin film growth, structure, and epitaxy); B0520F (Vapour deposition); B2550 (Semiconductor device technology)
Chemical Indexing:
H el (Elements - 1)
Si:H bin - Si bin - H bin - Si el - H el - H dop (Elements - 1,1,2)
O el (Elements - 1)
AsH3 bin - As bin - H3 bin - H bin (Elements - 2)
AlN bin - Al bin - N bin (Elements - 2)
Numerical Indexing: wavelength 1.216E-07 m; wavelength 1.3E-07 m; efficiency 8.0E+00 percent; size 1.9E-01 m; temperature 3.73E+02 to 6.73E+02 K

2/9/2 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC

03344509 INSPEC Abstract Number: A89049837
Title: Growth of SiO/sub 2/ thin film by double-excitation photoinduced chemical **vapor** deposition **incorporated with microwave excitation of oxygen**
Author(s): Inoue, K.; Nakatani, Y.; Okuyama, M.; Hamakawa, Y.
Author Affiliation: Dept. of Electr. Eng., Osaka Univ., Japan
Journal: Journal of Applied Physics vol.64, no.11 p.6496-500
Publication Date: 1 Dec. 1988 Country of Publication: USA
CODEN: JAPIAU ISSN: 0021-8979
U.S. Copyright Clearance Center Code: 0021-8979/88/236496-06$02.40
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: A new technology for low-temperature growth of good-quality silicon dioxide (SIO/sub 2/) thin films has been developed. The film growth technology is a double-excitation photoinduced **chemical** vapor **deposition** using vacuum **ultraviolet** and **ultraviolet** lights from source gases of Si/sub 2/H/sub 6/ and microwave-excited O/sub 2/ in the substrate temperature region of 25-300 degrees C. Growth rate is about 140 AA/min at 25 degrees C and does not change with the substrate temperature. Infrared absorption peak of the Si-H bond completely disappears in the films deposited even at 25 degrees C. The interface state density is extremely low and its minimum density is 7*10/sup 10/ cm/sup -2/ eV/sup -1/ for the film deposited at 100 degrees C. The reaction and deposition mechanisms are discussed from mass spectroscopic analysis. O/sub 3/ molecules are increased by the microwave excitation of O/sub 2/ and chemically active **oxygen radicals** are produced by the irradiation of the D/sub 2/ and Hg lamps. Si/sub 2/OH/sub 5/, SiH/sub 2/, H/sub 2/ molecules are also increased by either the photo- or microwave excitation, but H/sub 2/O and OH are not increased. (4 Refs)
Subfile: A
Descriptors: **chemical** vapour **deposition** ; interface electron states; mass spectra; silicon compounds; thin films
Identifiers: double excitation photoinduced **CVD** ; microwave excitation; thin films; interface state density; mass spectroscopic analysis; SiO/sub 2
Class Codes: A8115H (Chemical vapour deposition); A6855 (Thin film growth, structure, and epitaxy)
Chemical Indexing:
SiO2 bin - O2 bin - Si bin - O bin (Elements - 2)

2/9/3 (Item 3 from file: 2)
DIALOG(R)File 2:INSPEC

02615208 INSPEC Abstract Number: A86034497, B86015059
Title: Deposition of dielectric thin films (SiO/sub 2/, Si/sub 3/N/sub 4/) on III-V materials by UV **(Hg) assisted** CVD
Author(s): Dimitriou, P.; Scavennec, A.
Author Affiliation: CNET-Lab. de Bagneux, France
Journal: Le Vide les Couches Minces vol.40, no.227 p.335-8
Publication Date: May-July 1985 Country of Publication: France
CODEN: VCMIDS ISSN: 0223-4335
Conference Title: Comptes Rendus des Journees d'Etude sur l'Elaboration, a Basse Temperature, des Materiaux en Couche (Low Temperature Studies of Thin Film Materials)
Conference Date: 22-23 Oct. 1984 Conference Location: Paris, France
Language: French Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Experimental (X)
Abstract: At low temperature (50-200 degrees C) **chemical** vapour **deposition** (**CVD**) process has been used for the deposition of SiO/sub 2/ and Si/sub 3/N/sub 4/ films in InP wafers. In contrast with conventional **CVD** and plasma enhanced deposition techniques which often destroy the

surface properties of [redacted]I-V semiconductor compounds, [redacted] low temperature **UV** enhanced **CVD** technique is found suitable for the realization of micro-optoelectronics devices and circuits. Mercury at a low vapour pressure is used as a photosensitizing element activating the reaction of SiH/sub 4/ and N/sub 2/O (or NH/sub 3/) which are excited by the 2537 AA wavelength from a Hg **UV** lamp through a quartz window. The deposition rate lies between 20 and 60 AA/min with an index of refraction of 1.47 and 1.82 for SiO/sub 2/ and Si/sub 3/N/sub 4/ films respectively, as inferred from ellipsometric measurements at lambda =6328 AA. Recombination of **atomic oxygen** controls the decomposition rate inside this temperature range. (2 Refs)

Subfile: A B

Descriptors: **chemical** vapour **deposition** ; ellipsometry; III-V semiconductors; indium compounds; insulating thin films; refractive index; silicon compounds

Identifiers: refractive index; III-V semiconductors; dielectric thin films; Hg; low temperature; SiO/sub 2/; Si/sub 3/N/sub 4/; InP wafers; **UV** enhanced **CVD** technique; micro-optoelectronics; ellipsometric measurements

Class Codes: A6855 (Thin film growth, structure, and epitaxy); A7865J (Nonmetals); A8115H (Chemical vapour deposition); B0520F (Vapour deposition); B2520D (II-VI and III-V semiconductors); B2550E (Surface treatment and oxide film formation)

2/9/4 (Item 4 from file: 2)

DIALOG(R)File 2:INSPEC

02351837 INSPEC Abstract Number: A85003389

Title: UV-**induced photodeposition of Fe films from iron carbonyl**

Author(s): Love, P.J.; Loda, R.T.; Rosenberg, R.A.; Green, A.K.; Rehn, V.

Author Affiliation: Res. Dept., Naval Weapons Center, China Lake, CA, USA

Journal: Proceedings of the SPIE - The International Society for Optical Engineering vol.459 p.25-32

Publication Date: 1984 Country of Publication: USA

CODEN: PSISDG ISSN: 0277-786X

Conference Title: Laser Assisted Deposition, Etching and Doping

Conference Sponsor: SPIE

Conference Date: 26-27 Jan. 1984 Conference Location: Los Angeles, CA, USA

Language: English Document Type: Conference Paper (PA); Journal Paper (JP)

Treatment: Experimental (X)

Abstract: Results are presented on the 77K photodecomposition of Fe(CO)/sub 5/ to produce Fe films using synchrotron and excimer laser radiation. Analysis of these films included in situ photon-stimulated ion desorption (PSID) and total electron yield (TEY) spectroscopies, and ex situ Auger electron spectroscopy (AES), scanning electron microscopy (SEM), X-ray fluorescence and resistivity measurements. For the films grown using synchrotron radiation, the various ion products were identified and their intensities monitored during photolysis. For the films grown using excimer laser radiation, appropriate laser power densities and Fe(CO)/sub 5/ pressures produced adherent metallic films which contained less than 13 **atomic** % **oxygen** and carbon contamination. (20 Refs)

Subfile: A

Descriptors: **chemical** vapour **deposition** ; **CVD** coatings; iron; iron compounds; metallic thin films; photolysis

Identifiers: synchrotron radiation; total electron yield spectroscopy; C contamination; O contamination; **UV** -induced photodeposition; Fe films; photodecomposition; Fe(CO)/sub 5/; excimer laser radiation; photon-stimulated ion desorption; Auger electron spectroscopy; scanning electron microscopy; X-ray fluorescence; resistivity measurements; ion products; photolysis; laser power densities; adherent metallic films

Class Codes: A6855 (Thin film growth, structure, and epitaxy); A8115H (Chemical vapour deposition); A8250 (Photochemistry and radiation chemistry)

4

2/9/5 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

03557146 E.I. Monthly No: EIM9302-005575
Title: Deposition methods of high-T//c superconductors.
Author: Kautek, W.
Corporate Source: Federal Inst of Materials Research and Testing, Berlin, Ger
Conference Title: 3rd European Vacuum Conference, EVC-3 and Austrian-Hungarian-Yugoslav Fifth Joint Conference
Conference Location: Vienna, Austria Conference Date: 19910923
E.I. Conference No.: 16836
Source: Vacuum v 43 n 5-7 May-Jul 1992. p 403-411
Publication Year: 1992
CODEN: VACUAV ISSN: 0042-207X
Language: English
Document Type: JA; (Journal Article) Treatment: L; (Literature Review/Bibliography)
Journal Announcement: 9302
Abstract: Depositing high-T//c oxide superconductors poses the most demanding challenge for thin film technology. The complexity of the superconductor film formation parallels the complexity of the materials themselves. Making films of these materials requires transporting all the elements in the proper stoichiometry onto the substrate, forming the correct crystal structure and layer stacking sequence, and providing sufficient oxygen to form the superconducting phase. Evaporation of separate metal constituents generally is a low-pressure process. A high oxygen-atom arrival rate at the substrate under this restriction can successfully be provided by oxygen rf-plasmas, microwave-generated **atomic oxygen** , electron cyclotron resonance (ECR) sources, and ozone-generation techniques. Sputter deposition suffers from negative ion bombardment of the substrate. This can be minimized by geometries where the substrate is held outside the plasma, and by applying high sputtering pressures with attendant short mean free paths. **Chemical** vapour **deposition** (**CVD**) still shows some problems with volatile barium sources. Nevertheless, it represents one of the most promising techniques for large-scale applications. In the pulsed laser deposition (PLD) technique, a high-energy pulse of **ultraviolet** or visible laser radiation vaporizes and ejects the surface material which impinges on the substrate subsequently. The process runs far off the thermal equilibrium, and therefore produces an extremely good stoichiometric material transfer. Furthermore, parameters can be chosen to allow for a wide dynamic range between molecular beam and heavy sputter conditions. There are practically no restrictions regarding the reactive gas atmosphere in the deposition chamber. Highest quality epitaxial films of the YBa//2Cu//3O//7// minus // delta superconductor made to date have been produced this way. Other approaches include, e.g. thermal spraying, chemical spray pyrolysis, sol-gel spin casting, dipping, and electrodeposition. Nevertheless, traditional vacuum techniques, or the more novel laser deposition processes, are most likely of finding general acceptance for a thin film process. (Author abstract) 206 Refs.
Descriptors: HIGH TEMPERATURE SUPERCONDUCTORS; VAPOR DEPOSITION; THIN FILMS; **CHEMICAL** VAPOR **DEPOSITION** ; ELECTRODEPOSITION; EVAPORATION; SPUTTER DEPOSITION
Identifiers: PULSED LASER DEPOSITIOM; CHEMICAL SPRAY PYROLYSIS; SOL-GEL SPIN CASTING
Classification Codes:
708 (Electric & Magnetic Materials); 802 (Chemical Apparatus & Plants)
70 (ELECTRICAL ENGINEERING); 80 (CHEMICAL ENGINEERING)

2/9/6 (Item 1 from file: 108)
DIALOG(R)File 108:AEROSPACE DATABASE

02190099 A95-31435

Degradation of thin ms in low Earth orbit and mparisons with laboratory simulation

Spady, Blaine R.; Synowicki, R. A.; Hale, Jeffrey S.; DeVries, M. J.; Ianno, N.; McGahan, William A.; Woollam, John A. (Nebraska, Univ., Lincoln)

In: Optical interference coatings; Proceedings of the Meeting, Grenoble, France, June 6-10, 1994. Pt. 1 (A95-31426 08-74), Bellingham, WA, Society of Photo-Optical Instrumentation Engineers (SPIE Proceedings. Vol. 2253), 1994, p. 188-194.

1994 13 REFS.

CONTRACT NO.: NAG3-95

LANGUAGE: English

COUNTRY OF ORIGIN: United States COUNTRY OF PUBLICATION: United States

DOCUMENT TYPE: CONFERENCE PAPER

DOCUMENTS AVAILABLE FROM AIAA Technical Library

JOURNAL ANNOUNCEMENT: IAA9508

LEO exposes space materials simultaneously to **atomic oxygen** and **UV** light. Numerous materials were sputtered, e-beam evaporated, and **CVD** deposited. Experiments with these samples aboard the NASA 1992 and 1993 space flights STS46 and STS-51 are discussed, and comparisons made with laboratory studies in an oxygen plasma environment. Multiple samples of thin films of Al, diamondlike carbon, diamond, silicon nitride, silicon carbide, and solar concentrator multilayer stacks were prepared. These were characterized both before and after flight by spectroscopic ellipsometry, spectrophotometry, interferometry, Auger spectroscopy, Raman spectroscopy, and atomic force microscopy (Author)

DESCRIPTORS: *THIN FILMS; *EARTH ORBITAL ENVIRONMENTS; *SYSTEMS SIMULATION; *SPACEBORNE EXPERIMENTS; CUMULATIVE DAMAGE; LABORATORIES; SPACE TRANSPORTATION SYSTEM FLIGHTS

SUBJECT CLASSIFICATION: 7523 Chemistry & Materials--General (1975-)

Possible

2/9/7 (Item 2 from file: 108)

DIALOG(R)File 108:AEROSPACE DATABASE

01513456 A85-28064

Effects of H2O on the SiO2-HgCdTe interface

WILSON, J. A.; COTTON, V. A. (Santa Barbara Research Center, Coleta, CA)

Journal of Applied Physics (ISSN 0021-8979), vol. 57, March 15, 1985, p. 2030-2035.

Mar. **1985** 16 REFS.

CONTRACT NO.: MDA903-83-C-0108

LANGUAGE: English

COUNTRY OF ORIGIN: United States COUNTRY OF PUBLICATION: United States

DOCUMENT TYPE: JOURNAL ARTICLE

DOCUMENTS AVAILABLE FROM AIAA Technical Library

JOURNAL ANNOUNCEMENT: IAA8511

The growth of SiO2 on Si involves a high-temperature process with temperatures which cannot be tolerated by most IR detector materials. In the case of HgCdTe, even brief exposure to temperatures much in excess of 100 C degrade device performance. A suitable low-temperature, **chemical** vapor **deposition** (**CVD**) process for such cases involves the deposition of SiO2 on the basis of a reaction of silane (SiH4) with **atomic oxygen** . The oxygen required can be obtained by different techniques. The Photox process uses Hg vapor excited by exposure to **UV** (2537 A) radiation to catalyze the decomposition of nitrous oxide (N2O). The oxygen and silane react to produce SiO2 and several byproducts including H2O. The present investigation is concerned with the role played by water in the interface properties, taking into account the Photox process. It is found that water can affect the mechanical stability of the interface. A reversible effect on the interface electrical properties is also observed (G.R.)

SOURCE OF ABSTRACT/SUBFILE: AIAA

DESCRIPTORS: *INTERFACE STABILITY; *MERCURY CADMIUM TELLURIDES; *MOISTURE CONTENT; *SEMICONDUCTORS (MATERIALS); *SILICON DIOXIDE; CAPACITANCE; ELECTRIC POTENTIAL; FOURIER ANALYSIS; HIGH RESOLUTION; SOLID-SOLID INTERFACES; SPECTROSCOPIC ANALYSIS

SUBJECT CLASSIFICATION: 7576 Solid-State Physics (1975-)

6

2/9/8 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal

12012819 PASCAL No.: 95-0202613
Surface characterization of SiC mirrors exposed to fast atomic oxygen
RAIKAR G N; GREGORY J C; PARTLOW W D; HERZIG H; CHOYKE W J
GRANT JOHN T, pref
Univ. Alabama Huntsville, Surface Science Laboratories, chemistry dep., Huntsville AL 35899, USA
American Vacuum Society. Applied Surface Science Division, New York NY, USA.; American Vacuum Society. New England Chapter, USA.; American Society for Testing and Materials, USA.
Surface analysis '94. Symposium (Burlington MA USA) 1994-06-15
Journal: Surface and interface analysis, **1995** , 23 (2) 77-82
ISSN: 0142-2421 CODEN: SIANDQ Availability: INIST-18260; 354000055615690030
No. of Refs.: 17 ref.
Document Type: P (Serial); C (Conference Proceedings) ; A (Analytic)
Country of Publication: United Kingdom
Language: English
Two chemical vapor deposited silicon carbide (SiC) mirrors were exposed to the 5 eV fast **atomic oxygen** environment in low Earth orbit on NASA's Long Duration Exposure Facility (LDEF) which remained in space for nearly 6 years. The samples were characterized using the techniques of x-ray photoelectron spectroscopy (XPS), ellipsometry, and reflectance measurements. The normal-incidence optical reflectance of the **atomic - oxygen** -exposed portion of one sample degraded considerably over the 60-160 nm span. The XPS results showed the presence of SiO SUB 2 -like species, the thickness varying from 1 to 8 nm depending upon the location of the samples on the space-craft. The XPS results are in good agreement with those from ellipsometry measurements

English Descriptors: Oxygen; Experimental study; ESCA; Ellipsometry; Spectral reflectance; Mirrors; X radiation; Soft X radiation; Extreme **ultraviolet** radiation; Spaceborne instruments; Space; Characterization; Surfaces; Silicon carbides; Binary compounds; **CVD** ; Fabrication; Irradiation; Atomic beams; Atoms; Space flight
Broad Descriptors: Inorganic compounds; Compose mineral

French Descriptors: Oxygene; Etude experimentale; ESCA; Ellipsometrie; Reflectance spectrale; Miroir; Rayon X; Rayon X mou; Rayonnement **UV** extreme; Instrument spatial; Espace; Caracterisation; Surface; Silicium carbure; Compose binaire; **CVD** ; Fabrication; Irradiation; Faisceau atomique; SiC; C Si; 4279B; 0785F; 0785; 0789; Atome; Vol spatial

Classification Codes: 001B40B79B; 001B00G85F; 001B00G85; 001B00G89

7

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SYSTEM:OS  - DIALOG One[redacted]rch
  File   2:INSPEC  1969-2001/Jun W4
         (c) 2001 Institution of Electrical Engineers
  File   6:NTIS  1964-2001/Jul W2
         Comp&distr  2000 NTIS, Intl Cpyrght All Right
*File   6: See HELP CODES6 for a short list of the Subject Heading Codes
(SC=, SH=) used in NTIS.
  File   5:Biosis Previews(R)  1969-2001/Jun W3
         (c) 2001 BIOSIS
  File  35:Dissertation Abs Online  1861-2001/Jul
         (c) 2001 ProQuest Info&Learning
  File  94:JICST-EPlus  1985-2001/Jun W1
         (c)2001 Japan Science and Tech Corp(JST)
*File  94: There is no data missing. UDs have been adjusted to reflect
 the current months data. See Help News94 for details.
  File 144:Pascal  1973-2001/Jun W4
         (c) 2001 INIST/CNRS
  File 335:Ceramic Abstracts  1976-2001/Q2
         (c) 2001 Cambridge Scientific Abs.

      Set  Items  Description
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?s (pd<=960422 or py<=1996) and (CVD or pCVD or PACVD or PECVD or APCVD or LPCVD or che
mical(2w)deposition) and (ozone or O3 or O(2w)3) and (ultraviolet or UV or (Hg or mercu
ry)(2w)(lamp or lamps)) and (SiO or silicon(w)(oxide or dioxide))
>>>One or more prefixes are unsupported
>>>  or undefined in one or more files.
Processing
Processing
Processing
>>>File 144 processing for PD=  : PD=960422
>>>    started at PD=18019 stopped at PD=198311198312
Processing
>>>File 335 processing for PD=  : PD=960422
>>>    started at PD=1329345 stopped at PD=911119
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       34534403  PY<=1996
          61284  CVD
            460  PCVD
            582  PACVD
           7775  PECVD
            492  APCVD
           4220  LPCVD
        2939796  CHEMICAL
         358336  DEPOSITION
          82779  CHEMICAL(2W)DEPOSITION
          65668  OZONE
           9488  O3
        1424894  O
        5719175  3
         226627  O(2W)3
         245282  ULTRAVIOLET
         303676  UV
         100294  HG
         108313  MERCURY
          35708  LAMP
          18721  LAMPS
           4774  (HG OR MERCURY)(2W)(LAMP OR LAMPS)
         129003  SIO
         571629  SILICON
         644389  OXIDE
         257168  DIOXIDE
          33451  SILICON(W)(OXIDE OR DIOXIDE)
S1          45  (PD<=960422 OR PY<=1996) AND (CVD OR PCVD OR PACVD OR
                PECVD OR APCVD OR LPCVD OR CHEMICAL(2W)DEPOSITION) AND
                (OZONE OR O3 OR O(2W)3) AND (ULTRAVIOLET OR UV OR (HG OR
                MERCURY)(2W)(LAMP OR LAMPS)) AND (SIO OR SILICON(W)(OXIDE OR DIOXIDE))
```

Conference Title: International Electron Devices Meeting. Technical Digest (IEEE Cat. No.88CH2528-8) p.730-3
Publisher: IEEE, New York, NY, USA
Publication Date: 1988 Country of Publication: USA 902 pp.
U.S. Copyright Clearance Center Code: CH2528-8/88/0000-0730$01.00
Conference Sponsor: IEEE
Conference Date: 11-14 Dec. 1988 Conference Location: San Francisco, CA, USA
Language: English
Subfile: B

...Abstract: various Si oxide films. The critical concentration for native oxide obtained in wet processing or **UV O** /sub **3** / organic contamination cleaning is lower than those for thermal oxide, **CVD** (**chemical** vapor **deposition**) oxide, and **CVD** BSG. The difference becomes large with decreasing moisture level. Based on the results obtained, dry...
...Identifiers: **UV O** /sub **3** / organic contamination cleaning...

...**SiO** /sub 2/ etching
1988

2/K,3/27 **(Item 27 from file: 2)**
DIALOG(R)File 2:INSPEC
(c) 2001 Institution of Electrical Engineers. All rts. reserv.

03344509 INSPEC Abstract Number: A89049837
Title: Growth of SiO**/sub 2/ thin film by double-excitation photoinduced** chemical **vapor** deposition **incorporated with microwave excitation of oxygen**
Author(s): Inoue, K.; Nakatani, Y.; Okuyama, M.; Hamakawa, Y.
Author Affiliation: Dept. of Electr. Eng., Osaka Univ., Japan
Journal: Journal of Applied Physics vol.64, no.11 p.6496-500
Publication Date: 1 Dec. 1988 Country of Publication: USA
CODEN: JAPIAU ISSN: 0021-8979
U.S. Copyright Clearance Center Code: 0021-8979/88/236496-06$02.40
Language: English
Subfile: A

Title: Growth of SiO**/sub 2/ thin film by double-excitation photoinduced** chemical **vapor** deposition **incorporated with microwave excitation of oxygen**
Abstract: A new technology for low-temperature growth of good-quality **silicon dioxide** (**SIO** /sub 2/) thin films has been developed. The film growth technology is a double-excitation photoinduced **chemical** vapor **deposition** using vacuum **ultraviolet** and **ultraviolet** lights from source gases of Si/sub 2/H/sub 6/ and microwave-excited O...
... at 100 degrees C. The reaction and deposition mechanisms are discussed from mass spectroscopic analysis. **O** /sub **3** / molecules are increased by the microwave excitation of O/sub 2/ and chemically active oxygen radicals are produced by the irradiation of the D/sub 2/ and **Hg lamps** . Si/sub 2/OH/sub 5/, SiH/sub 2/, H/sub 2/ molecules are also...
Descriptors: **chemical** vapour **deposition** ;
Identifiers: double excitation photoinduced **CVD** ; ...

...**SiO** /sub 2/
1988

2/K,3/28 **(Item 28 from file: 2)**
DIALOG(R)File 2:INSPEC
(c) 2001 Institution of Electrical Engineers. All rts. reserv.

02969340 INSPEC Abstract Number: A87113415, B87058975
Title: Preparation of SiO**/sub 2/ film by photo-induced** chemical **vapor** deposition **using a deuterium lamp and its annealing effect**
Author(s): Toyoda, Y.; Inoue, K.; Okuyama, M.; Hamakawa, Y.

Author Affiliation: [redacted]pt. of Electr. Eng., Fac. [redacted]Eng. Sci., Osaka Univ., Japan

Journal: Japanese Journal of Applied Physics, Part 1 (Regular Papers & Short Notes) vol.26, no.6 p.835-4

Publication Date: June 1987 Country of Publication: Japan

CODEN: JAPNDE ISSN: 0021-4922

Language: English

Subfile: A B

Title: Preparation of SiO/sub 2/ film by photo-induced chemical vapor deposition using a deuterium lamp and its annealing effect

Abstract: **Silicon dioxide** thin films have been prepared at low temperatures from SiH/sub 4/ and O/sub 2/ by direct photo-induced **CVD** using a deuterium lamp. The growth rate is 75 AA/min at 8440 degrees C while no growth occurs below 180 degrees C without deuterium lamp irradiation. **UV** and VUV light irradiation and an increase of the substrate temperature have effects of increasing...

... refractive index, and decreasing H incorporation and the amount of the oxide charge. The photo- **CVD** films deposited above 180 degrees C show refractive indices of 1.45-1.46. Annealing...

... the infrared absorptions due to Si-H stretching, Si-OH deformation and Si/sub 2/**O** /sub **3** / bondings as well as the oxide charge. The activation energies of the Si-H, the Si-OH deformation, the Si/sub 2/**O** /sub **3** / and the oxide charge obtained from the annealing characteristics are 0.18-0.19, 0...

...Descriptors: **chemical** vapour **deposition** ;

...Identifiers: **UV** irradiation...

...photo-induced **chemical** vapor **deposition** ; ...

...photo-induced **CVD** ; ...

...Si/sub 2/**O** /sub **3** / bondings...

...**SiO** /sub 2/ film

1987

2/K,3/29 (Item 29 from file: 2)

DIALOG(R)File 2:INSPEC

02695451 INSPEC Abstract Number: A86075228, B86042336

Title: Defect studies in MCVD fibers

Author(s): Iino, A.; Tamura, T.; Orimo, K.; Kamiya, T.; Ogai, M.

Author Affiliation: Furukawa Electr. Co. Ltd., Chiba, Japan

Conference Title: IOOC-ECOC '85. 5th International Conference on Integrated Optics and Optical Fibre Communication and 11th European Conference on Optical Communication. Technical Digest p.527-30 vol.1

Publisher: Istituto Int. Comunicazioni, Genoa, Italy

Publication Date: 1985 Country of Publication: Italy 3 vol. (xxxii+924+199+96) pp.

Conference Date: 1-4 Oct. 1985 Conference Location: Venice, Italy

Language: English

Subfile: A B

Abstract: The number of Germanium E' centers produced by **ultraviolet** -ray irradiation was found to be reduced with decreasing phosphorus concentration in graded index fibers with **SiO** /sub 2/-GeO/sub 2/-P/sub 2/O/sub 5/ core. The loss increase...

... closely correlated with defects in the neighborhood of germanium and nonstoichiometric configurations (P/sub 2/**O** /sub **3** / etc.) generated by phosphorus doping in the optical fibers.

Descriptors: **chemical** vapour **deposition** ;

...Identifiers: **ultraviolet** -ray irradiation...

precluding a **UV** photon[redacted]sisted mechanism, these result[redacted]uggest that the changes in transparency and composition occur via...

... compositions, indicate that it was the change in SiH content that most directly affected the **UV** transparency. Thus the photomodifiable, **UV** absorbing defect is associated with SiH bonds in the glass. Changes in other features of the FTIR spectra were also observed. Overall, the local modification of the **UV** transparency of silicon oxynitride thin films was readily achieved by current excimer laser technology. While...
...Descriptors: plasma **CVD** coatings...

...**ultraviolet** spectra of inorganic solids
...Identifiers: **UV** spectra...

...plasma enhanced **chemical** vapor **deposition** ; ...

...deep **ultraviolet** transparency...

...**UV** absorbing defect...

...Al/sub 2/**O** /sub **3** /; ...

...**SiO** /sub 2/
1989

QC 176.82.T5 hard copy

2/K,3/25 **(Item 25 from file: 2)**
DIALOG(R)File 2:INSPEC
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03405169 INSPEC Abstract Number: A89082404
Title: The direct photochemical vapour deposition of SiO**/sub 2/ from Si/sub 2/H/sub 6/ and N/sub 2/** O**/sub** 3**/ mixtures**
Author(s): Bhatnagar, Y.K.; Milne, W.I.
Author Affiliation: Dept. of Eng., Cambridge Univ., UK
Journal: Thin Solid Films vol.168, no.2 p.345-52
Publication Date: 15 Jan. 1989 Country of Publication: Switzerland
CODEN: THSFAP ISSN: 0040-6090
U.S. Copyright Clearance Center Code: 0040-6090/89/$3.50
Language: English
Subfile: A

Title: The direct photochemical vapour deposition of SiO**/sub 2/ from Si/sub 2/H/sub 6/ and N/sub 2/** O**/sub** 3**/ mixtures**
Abstract: The direct photochemical vapour deposition of **silicon dioxide** has been achieved from a mixture of Si/sub 2/H/sub 6/ and N/sub 2/ **O** /sub **3** / using an external deuterium lamp with a magnesium fluoride window as the vacuum **UV** source. The oxide has been deposited on n-type (100), 1-5 Omega cm, crystalline...
...Descriptors: **chemical** vapour **deposition** ;
...Identifiers: vacuum **UV** source...

...**SiO** /sub 2...

...N/sub 2/**O** /sub **3** /;
1989

2/K,3/26 **(Item 26 from file: 2)**
DIALOG(R)File 2:INSPEC
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03398690 INSPEC Abstract Number: B89042706
Title: Selective etching of native oxide by dry processing using ultra clean anhydrous hydrogen fluoride
Author(s): Miki, N.; Kikuyama, H.; Maeno, M.; Murota, J.; Ohmi, T.
Author Affiliation: Hashimoto Chem. Ind. Co. Ltd., Sakai, Japan

Matsuno, H.
Author Affiliation: Dept. of Electr. & Electron. Eng., Miyazaki Univ., Japan
Journal: Applied Physics Letters vol.69, no.10 p.1399-401
Publisher: AIP,
Publication Date: 2 Sept. 1996 Country of Publication: USA
CODEN: APPLAB ISSN: 0003-6951
SICI: 0003-6951(19960902)69:10L.1399:SPPC;1-U
Material Identity Number: A135-96037
U.S. Copyright Clearance Center Code: 0003-6951/96/69(10)/1399/3/$10.00
Language: English
Subfile: A B

Title: A single precursor photolithic chemical **vapor** deposition **of silica film using a dielectric barrier discharge xenon excimer lamp**

Abstract: Silica film has been produced at room temperature by a single precursor process of photolithic **chemical** vapor **deposition** using a newly developed Xe excimer lamp. Tetraethoxyorthosilicate (TEOS) has been used as a raw material. Transparent thin film of **SiO** /sub 2/ was obtained on single crystalline Al/sub 2/**O** /sub **3** / substrates and its properties were evaluated by means of the reflection Fourier transformation-infrared spectroscopy, the scanning electron microscopy, and **ultraviolet** -visible spectrometry. Consequently, it was found that the main component of the film was **SiO** /sub 2/ and very small amounts of residual organic materials were contained. It was also...

Descriptors: **CVD** coatings...
Identifiers: single precursor photolithic **chemical** vapor **deposition** ;
...

...**SiO** /sub 2/ film...

...**ultraviolet** -visible spectrometry...

...**SiO** /sub 2
1996

TA418.7.A66

2/K,3/5 (Item 5 from file: 2)
DIALOG(R)File 2:INSPEC

HAVE

5326302 INSPEC Abstract Number: A9617-8115H-020

Title: Application and properties of sub-monomolecular layers of silicon dioxide **deposited under mild conditions**
Author(s): Knotter, D.M.
Author Affiliation: Philips Res. Lab., Eindhoven, Netherlands
Journal: Applied Surface Science vol.99, no.2 p.99-110
Publisher: Elsevier,
Publication Date: June 1996 Country of Publication: Netherlands
CODEN: ASUSEE ISSN: 0169-4332
SICI: 0169-4332(199606)99:2L.99:APML;1-8
Material Identity Number: I974-96008
U.S. Copyright Clearance Center Code: 0169-4332/96/$15.00
Language: English
Subfile: A

Title: Application and properties of sub-monomolecular layers of silicon dioxide **deposited under mild conditions**

Abstract: Ultra-thin layers of **silicon dioxide** (<1 nm) can be applied via the UVO3CVD method whereby a gas mixture of **O** /sub **3** //**O** /sub **3** / and TMOS/N/sub 2/ (TMOS=tetramethyl orthosilicate) is decomposed with **UV** light (254 nm) to form **silicon dioxide** at room temperature and atmospheric pressure. A reaction chamber is designed and the parameters that...

... are optimized. Th deposition rate is independ of the TMOS concentration, but depends on the **ozone** concentration. Probably, the reaction kinetics is pseudo-first-order in the **ozone** concentration. With increased distance between the W lamp and the substrate the deposited **silicon dioxide** contains more organic groups. **Silicon dioxide** layers deposited on metal substrates are analyzed with static-SIMS, XPS, RBS, SEM, and glancing...

... 2 and the carbon content is near zero. With static-SIMS characteristic fragment ions of **silicon dioxide** and the metal substrate are detected. The relative peak intensities of these fragments linearly relate with the **silicon dioxide** layer thickness when the layer thickness is smaller than 2 nm. With SEM ultra-thin **silicon - dioxide** layers can be visualized, because the secondary electron emission of a coated and an uncoated...

... 29 nm thick layer was found to be crystalline, but no known diffraction pattern of **SiO** /sub x/ fitted the measured pattern. Metals can be coated with ultra-thin **silicon dioxide** . It was found that these ultra-thin layers inhibit metal corrosion. A metal surface coated with ultra-thin **silicon dioxide** can be further modified with known coupling agents, such as silanes, as if the metal was **silicon dioxide** .
Descriptors: **chemical** vapour **deposition** ;
Identifiers: **SiO** /sub 2...

...**ozone** concentration...

...**CVD** ;
1996

\2/K,3/6 **(Item 6 from file: 2)**
DIALOG(R)File 2:INSPEC

5238107 INSPEC Abstract Number: A9610-7340Q-007, B9605-2530F-038
Title: Low interface trap density for remote plasma deposited SiO/**sub 2/ on n-type GaN**
Author(s): Casey, H.C., Jr.; Fountain, G.G.; Alley, R.G.; Keller, B.P.; DenBaars, S.P.
Author Affiliation: Dept. of Electr. Eng., Duke Univ., Durham, NC, USA
Journal: Applied Physics Letters vol.68, no.13 p.1850-2
Publisher: AIP,
Publication Date: 25 March 1996 Country of Publication: USA
CODEN: APPLAB ISSN: 0003-6951
SICI: 0003-6951(19960325)68:13L.1850:ITDR;1-I
Material Identity Number: A135-96014
U.S. Copyright Clearance Center Code: 0003-6951/96/68(13)/1850/3/$10.00
Language: English
Subfile: A B

Title: Low interface trap density for remote plasma deposited SiO/**sub 2/ on n-type GaN**
Abstract: Metal-oxide-semiconductor capacitors were prepared with remote plasma-enhanced **chemical** vapor **deposition** of **SiO** /sub 2/ at ~300 degrees C on an n-type GaN epitaxial layer grown by atmospheric pressure metalorganic **chemical** -vapor **deposition** on a sapphire substrate. No hysteresis was observed in the high-frequency capacitance-voltage (C...

...and stretchout in the measured C-V curve and the increase of capacitance with incident **ultraviolet** light while in deep depletion suggest a low concentration of interface traps. These results demonstrate...
...Identifiers: remote **PECVD** ; ...

...Al/sub 2/**O** /sub **3** /; ...

...**SiO** /sub 2/-GaN
1996

2/K,3/7 (Item 7 from file: 2)
DIALOG(R)File 2:INSPEC
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5237645 INSPEC Abstract Number: A9610-4281C-003, B9605-4125-057
Title: Silica optical fibers doped in the core with special dopants and their sensitivity to ionizing radiation
Author(s): Darickova, A.; Matejec, V.; Pospisilova, M.; Chomat, M.; Kasik, I.
Author Affiliation: Fac. of Nucl. Sci. & Phys. Eng., Czech Tech. Univ., Prague, Czech Republic
Conference Title: Photonics `95. European Optical Society Annual Meetings Digest Series: Vol.2A Part vol.1 p.257-60 vol.1
Publisher: Eur. Opt. Soc, Munich, Germany
Publication Date: 1995 Country of Publication: West Germany 2 vol. 691 pp.
Material Identity Number: XX96-00086
Conference Title: Proceedings of Annual Meeting of the European Optical Society - Photonics `95
Conference Date: 23-25 Aug. 1995 Conference Location: Prague, Czech Republic
Language: English
Subfile: A B
Copyright 1996, IEE
...Abstract: mode and few-mode silica optical fibers doped in the core with Al/sub 2/ **O** /sub **3** / and with P/sub 2/O/sub 5/, Cr/sup 3+/, Mn/sup 2+/, Nd...

... has been found that in these fibers the ionizing radiation induces the shift of the **UV** absorption edge toward longer wavelengths and increases the optical losses. Linear increase of the attenuation...
Descriptors: **chemical** vapour **deposition** ;
...Identifiers: **SiO** /sub 2/ optical fibers...

...**UV** absorption edge...

...**SiO** /sub 2...

...**SiO** /sub 2/:Al/sub 2/**O** /sub **3** /; ...

...**SiO** /sub 2/:P/sub 2/**O** /sub **3** /; ...

...**SiO** /sub 2/:Cr...

...**SiO** /sub 2/:Mn...

...**SiO** /sub 2/:Nd
1995

2/K,3/8 (Item 8 from file: 2)
DIALOG(R)File 2:INSPEC
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5108854 INSPEC Abstract Number: A9524-7755-014, B9512-0520F-194
Title: ULSI dielectrics: low-temperature silicon dioxides
Author(s): Boyd, I.W.
Author Affiliation: Dept. of Electron. & Electr. Eng., Univ. Coll. London, UK
Journal: Materials Chemistry and Physics vol.41, no.4 p.266-74
Publication Date: Sept. 1995 Country of Publication: Switzerland
CODEN: MCHPDR ISSN: 0254-0584
U.S. Copyright Clearance Center Code: 0254-0584/95/$09.50

Language: English
Subfile: A B

Abstract: The use of **ultraviolet** (**UV**) and vacuum **ultraviolet** light generated from low-pressure **Hg** **lamps** and also a new type of excimer lamp to stimulate the growth and/or deposition...

...ultrathin dielectric films is described. Growth enhancement of more than 50 times is found for **UV** oxidation of Si at 550 degrees C, providing growth rates of around 0.5 AA...
... physical properties were determined using ellipsometry and Fourier transform infrared spectroscopy. A layered combination of **silicon** **oxide** , silicon nitride and silicon oxynitride has also been produced in the same reactor at temperatures...
Descriptors: **CVD** coatings...
...Identifiers: **silicon** **dioxide** ; ...

...**UV** oxidation...

...**ozone** oxidation...

...**SiO** /sub 2
1995

2/K,3/9 **(Item 9 from file: 2)**
DIALOG(R)File 2:INSPEC

5029742 INSPEC Abstract Number: A9518-8115H-010, B9510-0520F-013
Title: Growth of GaN films by combined laser and microwave plasma enhanced chemical **vapour** deposition
Author(s): Zhou Bing; Li Xin; Tansley, T.L.; Butcher, K.S.A.; Phillips, M.R.
Author Affiliation: Semicond. Sci. & Tech. Labs., Macquarie Univ., Australia
Journal: Journal of Crystal Growth vol.151, no.3-4 p.249-53
Publication Date: June 1995 Country of Publication: Netherlands
CODEN: JCRGAE ISSN: 0022-0248
Language: English
Subfile: A B

Title: Growth of GaN films by combined laser and microwave plasma enhanced chemical **vapour** deposition
Abstract: GaN films have been grown on quartz and (0112) sapphire substrates using combined **ultraviolet** excimer laser and microwave plasma enhanced metalorganic **chemical** vapour **deposition** (MOCVD) at a substrate temperature of 500 degrees C. Film compositions were analysed by X...
...Descriptors: plasma **CVD** ;
Identifiers: plasma **CVD** ; ...

...**UV** excimer laser...

...**SiO** /sub 2...

...Al/sub 2/**O** /sub **3** /
1995

2/K,3/10 **(Item 10 from file: 2)**
DIALOG(R)File 2:INSPEC

4578603 INSPEC Abstract Number: A9404-6855-132
Title: Paramagnetic defect analysis in UV **lamp induced chemical vapour**

deposited a- SiO**/sub 2/ films**

Author(s): Debauche, C.; Licoppe, C.; Flicstein, J.; Devine, R.A.B.
Author Affiliation: CNET, Bagneux, France

Conference Title: Amorphous Insulating Thin Films Symposium p.307-12
Editor(s): Kanicki, J.; Warren, W.L.; Devine, R.A.B.; Matsumura, M.
Publisher: Mater. Res Soc, Pittsburgh, PA, USA
Publication Date: 1993 Country of Publication: USA xii+636 pp.
Conference Date: 1-4 Dec. 1992 Conference Location: Boston, MA, USA
Language: English
Subfile: A

Title: Paramagnetic defect analysis in UV **lamp induced chemical vapour deposited a-** SiO**/sub 2/ films**

Abstract: An electron spin resonance study has been carried out on a-**SiO** /sub 2/ films deposited from SiH/sub 4/ and N/sub 2/O gases using **UV** lamp induced **chemical** vapour **deposition** . **Deposition** pressures have been varied from 5 torr to 30 torr whilst the substrate temperature was maintained at 240 degrees C. Bridging nitrogen (**O** /sub **3** / identical to Si-N-Si identical to **O** /sub **3** /) and oxygen-vacancy center defects are observed in small quantities (approximately=10/sup 16/ cm...

...pressure. The concentration of these defects can be dramatically reduced either by depositing the a- **SiO** /sub 2/ at high pressures (approximately=30 torr) or by post-deposition annealing at approximately=600 degrees C. Comparison with data on films produced by plasma enhanced **chemical** vapour **deposition** demonstrates that the mode of incorporation of nitrogen into the network depends critically upon the...

...Descriptors: **CVD** coatings
Identifiers: **UV** lamp induced chemical vapour deposited a-**SiO** /sub 2/ films...

...**SiO** /sub 2/
1993

SYSTEM:OS - DIALOG One[redacted]arch
File 2:INSPEC 1969-2001/Jun W4
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Truncate CC codes for complete retrieval.UDs were adjusted.
File 35:Dissertation Abs Online 1861-2001/Jul
(c) 2001 ProQuest Info&Learning

Set	Items	Description
	35563	PHOTO
	89874	UV
	99759	ULTRAVIOLET
	614542	LIGHT
	42106	CVD
	707512	CHEMICAL
	158847	VAPOR
	95156	VAPOUR
	377521	DEPOSIT?
	63516	CHEMICAL(W)(VAPOR OR VAPOUR)(W)DEPOSIT?
	1262	(((PHOTO OR UV) OR ULTRAVIOLET) OR LIGHT)(3W)(CVD OR CHEMICAL(W)(VAPOR OR VAPOUR)(W)DEPOSIT?)
	432718	SILICON
	253611	OXIDE
	86649	DIOXIDE
	15427	SILICON(W)(OXIDE OR DIOXIDE)
	109187	SIO
	23451	OZONE
	588792	O
	1975567	3
	115359	O(2W)3
S1	8	(PHOTO OR UV OR ULTRAVIOLET OR LIGHT)(3W)(CVD OR CHEMICAL(W)(VAPOR OR VAPOUR)(W)DEPOSIT?) AND (SILICON(W)(OXIDE OR DIOXIDE) OR SIO) AND (OZONE OR O(2W)3)

?rd
...completed examining records
S2 7 RD (unique items)
?t s2/full/all

2/9/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC
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5956859 INSPEC Abstract Number: A9815-8115H-073
Title: CVD processes for coatings and surface modifications
Author(s): Wahl, G.; Pulver, M.; Decker, W.; Klippe, L.
Author Affiliation: Inst. fur Oberflaechentechnik & Plasmatechnische Werkstoffentwicklung, Tech. Univ. Braunschweig, Germany
Journal: Surface and Coatings Technology Conference Title: Surf. Coat. Technol. (Switzerland) vol.100-101, no.1-3 p.132-41
Publisher: Elsevier,
Publication Date: March 1998 Country of Publication: Switzerland
CODEN: SCTEEJ ISSN: 0257-8972
SICI: 0257-8972(199803)100/101:1/3L.132:PCSM;1-X
Material Identity Number: J630-98009
U.S. Copyright Clearance Center Code: 0257-8972/98/$19.00
Conference Title: 1997 ICAM/E-MRS Conference, Symposium K: Coatings and Surface Modifications for Surface Protection and Tribological Applications
Conference Date: 16-20 June 1997 Conference Location: Strasbourg, France
Document Number: S0257-8972(97)00602-6
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Experimental (X)

Abstract: Chemical vapour deposition (CVD) has a number of important properties, but due to engineering problems CVD is not usually used in industrial applications. In this article these problems are discussed by the following examples: superconductor deposition and heat barrier deposition in a band evaporator; and **SiO** /sub x/C/sub y/ coatings on polymers produced by photo processes. Treatment in a corona discharge shows barrier effects at these coatings. (41 Refs)

Subfile: A

Descriptors: barium compounds; chemical vapour deposition; crystal microstructure; CVD coatings; diffusion barriers; high-temperature superconductors; infrared spectra; protective coatings; scanning electron microscopy; silicon compounds; stoichiometry; superconducting thin films; thermal insulating materials; ultraviolet spectra; X-ray chemical analysis; X-ray diffraction; X-ray photoelectron spectra; yttrium compounds; zirconium compounds

Identifiers: coatings; surface modifications; CVD processes; engineering problems; industrial applications; examples; superconductor thin film deposition; heat barrier deposition; band evaporator; **SiO** /sub x/C/sub y/ coatings; polymer substrates; **photo** processes **CVD** ; corona discharge treatment; barrier effects production; metal tapes; stoichiometry; BaO deposition rate; EDX; tape deposition reactor diagram; deposition parameters; XRD; SEM; coating morphology; UV absorption; infrared spectra; UV spectra; XPS; 20 to 850 C; YBa/sub 2/Cu/sub 3/O/sub 7/; ZrO/sub 2/-Y/sub 2/**O** /sub **3** /; ZrO/sub 2/; Y/sub 2/**O** /sub **3** /; SiOCH

Class Codes: A8115H (Chemical vapour deposition); A6855 (Thin film growth, structure, and epitaxy)

Chemical Indexing:

YBa2Cu3O7 ss - Ba2 ss - Cu3 ss - Ba ss - Cu ss - O7 ss - O ss - Y ss (Elements - 4)

ZrO2Y2O3 ss - O2 ss - O3 ss - Y2 ss - Zr ss - O ss - Y ss (Elements - 3)

ZrO2 bin - O2 bin - Zr bin - O bin (Elements - 2)

Y2O3 bin - O3 bin - Y2 bin - O bin - Y bin (Elements - 2)

SiOCH ss - Si ss - C ss - H ss - O ss (Elements - 4)

Numerical Indexing: temperature 2.93E+02 to 1.12E+03 K

2/9/2 (Item 2 from file: 2)

DIALOG(R)File 2:INSPEC

4578603 INSPEC Abstract Number: A9404-6855-132

Title: Paramagnetic defect analysis in UV lamp induced chemical vapour deposited a- SiO/sub 2/ films

Author(s): Debauche, C.; Licoppe, C.; Flicstein, J.; Devine, R.A.B.

Author Affiliation: CNET, Bagneux, France

Conference Title: Amorphous Insulating Thin Films Symposium p.307-12

Editor(s): Kanicki, J.; Warren, W.L.; Devine, R.A.B.; Matsumura, M.

Publisher: Mater. Res Soc, Pittsburgh, PA, USA

Publication Date: 1993 Country of Publication: USA xii+636 pp.

Conference Date: 1-4 Dec. 1992 Conference Location: Boston, MA, USA

Language: English Document Type: Conference Paper (PA)

Treatment: Experimental (X)

Abstract: An electron spin resonance study has been carried out on a-**SiO** /sub 2/ films deposited from SiH/sub 4/ and N/sub 2/O gases using **UV** lamp induced **chemical vapour deposition** . Deposition pressures have been varied from 5 torr to 30 torr whilst the substrate temperature was maintained at 240 degrees C. Bridging nitrogen (**O** /sub **3** / identical to Si-N-Si identical to **O** /sub **3** /) and oxygen-vacancy center defects are observed in small quantities (approximately=10/sup 16/ cm/sup -3/) whilst over coordinated N defects are observed in concentrations up to 10/sup 18/ cm/sup -3/ dependent upon the deposition pressure. The concentration of these defects can be dramatically reduced either by depositing the a-**SiO** /sub 2/ at high pressures (approximately=30 torr) or by post-deposition annealing at approximately=600 degrees C. Comparison with data on films produced by plasma enhanced chemical vapour deposition demonstrates that the mode of incorporation of nitrogen into the network depends critically

upon the chemical speci[redacted]in the deposition reactor. (1[redacted]efs)
Subfile: A
Descriptors: amorphous state; CVD coatings; insulating thin films; paramagnetic resonance of defects; paramagnetic resonance of ions and impurities; silicon compounds
Identifiers: **UV** lamp induced **chemical vapour deposited** a-**SiO** /sub 2/ films; electron spin resonance; oxygen-vacancy center defects; coordinated N defects; 5 to 30 torr; 240 degC; **SiO** /sub 2/
Class Codes: A6855 (Thin film growth, structure, and epitaxy); A6860 (Physical properties of thin films, nonelectronic); A7630M (Colour centres and other defects); A7630L (Other ions and impurities)
Chemical Indexing:
SiO2 int - O2 int - Si int - O int - SiO2 bin - O2 bin - Si bin - O bin (Elements - 2)
Numerical Indexing: pressure 6.7E+02 to 4.0E+03 Pa; temperature 5.13E+02 K

2/9/3 (Item 3 from file: 2)
DIALOG(R)File 2:INSPEC

4569988 INSPEC Abstract Number: A9404-6855-040
Title: Influence of pressure on nitrogen incorporation in ultraviolet chemical vapor deposited SiO**/sub 2/ films**
Author(s): Debauche, C.; Licoppe, C.; Ossart, P.; Devine, R.A.B.; Rochet, F.
Author Affiliation: France Telecom/CNET/PAB, Lab. de Bagneux, France
Journal: Journal of Applied Physics vol.74, no.9 p.5672-8
Publication Date: 1 Nov. 1993 Country of Publication: USA
CODEN: JAPIAU ISSN: 0021-8979
U.S. Copyright Clearance Center Code: 0021-8979/93/74(9)/5672/7/$6.00
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: **Ultraviolet** induced **chemical vapor deposition** was used to deposit **silicon dioxide** dielectrics on III-V materials at low temperature. Auger electron spectroscopy and nuclear reaction analysis measurements show that the nitrogen concentration in the layers decreases continuously with the total pressure. These results are in complete agreement with infrared transmission spectroscopic and ellipsometric measurements. The number and the nature of the paramagnetic defects measured by electron spin resonance are also shown to be dependent upon the deposition pressure. Bridging nitrogen (**O** /sub **3** / identical to Si-N-Si identical to **O** /sub **3** /) and oxygen-like-vacancy centers (E/sub 1/') defects are observed in small quantities (approximately=10/sup 16/ cm/sup -3/), while overcoordinated N defects are observed in concentrations up to 10/sup 18/ cm/sup -3/, depending upon deposition pressure. Such **SiO** /sub 2/ films were used in the processing of metal-insulator InP structures. Improvement of the electrical properties also occurs when the total pressure is increased, in agreement with expectations founded on the electron spin resonance results. (21 Refs)
Subfile: A
Descriptors: Auger effect; chemical vapour deposition; defect electron energy states; dielectric thin films; ellipsometry; infrared spectra of inorganic solids; nitrogen; paramagnetic resonance of defects; silicon compounds
Identifiers: **UV -CVD** ; N incorporation; ellipsometry; ESR; E centres; metal-insulator structures; Auger electron spectroscopy; nuclear reaction analysis; infrared transmission; paramagnetic defects; **SiO** /sub 2/ films; **SiO** /sub 2/:N
Class Codes: A6855 (Thin film growth, structure, and epitaxy); A8115H (Chemical vapour deposition); A7920F (Electron impact: Auger emission); A7830G (Infrared and Raman spectra in inorganic crystals); A7865J (Nonmetals); A7630 (Electron paramagnetic resonance and relaxation)
Chemical Indexing:
SiO2:N ss - SiO2 ss - O2 ss - Si ss - N ss - O ss - SiO2 bin - O2 bin - Si bin - O bin - N el - N dop (Elements - 2,1,3)

SiO2 bin - O2 bin - Si bin - O bin (Elements - 2)

2/9/4 (Item 4 from file: 2)
DIALOG(R)File 2:INSPEC

04162091 INSPEC Abstract Number: A9213-6848-009
Title: Differences in the SiO/sub 2//InP interfaces obtained by thermal and UV-induced chemical vapour deposition
Author(s): Licoppe, C.; Debauche, C.; Houzay, F.; Flicstein, J.; Nissim, Y.I.; Moison, J.M.
Author Affiliation: Lab. de Bagneux, CNET, France
Journal: Applied Surface Science vol.56-58, no.1-4, pt.B p.789-94
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Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Experimental (X)
Abstract: The interface between InP covered by its native oxide and **SiO** /sub 2/ is built up by thermal or **UV** -assisted **chemical vapour deposition** from silane precursor gas. It is analyzed in situ by X-ray photoemission spectroscopy in an ultra-high-vacuum environment and by infrared absorption spectroscopy in a low-pressure deposition reactor. Both techniques indicate that the two processes lead to a grossly similar interface InP-Si-O-Si-... involving the reduction of native oxides. However, significant differences are observed concerning the state of oxidation of silicon, the presence of hydrogen, and the morphology of the interfacial layer. Results are discussed in an interface engineering perspective. (15 Refs)
Subfile: A
Descriptors: chemical vapour deposition; III-V semiconductors; indium compounds; infrared spectra of inorganic solids; radiation effects; reduction (chemical); semiconductor-insulator boundaries; silicon compounds ; surface chemistry; X-ray photoelectron spectra
Identifiers: thermal CVD; interfacial layer morphology; oxidation state; III-V semiconductor; **UV** -induced **chemical vapour deposition** ; X-ray photoemission spectroscopy; ultra-high-vacuum environment; infrared absorption spectroscopy; low-pressure deposition reactor; reduction; **SiO** /sub 2/-InP; **SiO** /sub 2/-In/sub 2/**O** /sub **3** /-InP; H/sub 2/; SiH/sub 4/ precursor gas
Class Codes: A6848 (Solid-solid interfaces); A7960G (Composite surfaces) ; A7830G (Infrared and Raman spectra in inorganic crystals); A8265J (Heterogeneous catalysis at surfaces and other surface reactions); A6180B (Ultraviolet, visible and infrared radiation)
Chemical Indexing:
SiO2-InP int - SiO2 int - InP int - In int - O2 int - Si int - O int - P int - SiO2 bin - InP bin - In bin - O2 bin - Si bin - O bin - P bin (Elements - 2,2,4)
SiO2-In2O3-InP int - In2O3 int - SiO2 int - In2 int - InP int - In int - O2 int - O3 int - Si int - O int - P int - In2O3 bin - SiO2 bin - In2 bin - InP bin - In bin - O2 bin - O3 bin - Si bin - O bin - P bin (Elements - 2,2,2,4)
H2 el - H el (Elements - 1)
SiH4 bin - H4 bin - Si bin - H bin (Elements - 2)

2/9/5 (Item 5 from file: 2)
DIALOG(R)File 2:INSPEC

03463680 INSPEC Abstract Number: A89110132, B89060512
Title: Characterization of photo- CVD silicon oxide

Author(s): Padmanabha[redacted]R.; Miller, B.J.; Saha, N.C.
Author Affiliation: Semicond. Res. & Dev. Lab., Motorola Inc., Phoenix, AZ, USA
Conference Title: Laser and Particle-Beam Chemical Processing for Microelectronics. Symposium p.385-90
Editor(s): Ehrlich, D.J.; Higashi, G.S.; Oprysko, M.M.
Publisher: Mater. Res. Soc, Pittsburgh, PA, USA
Publication Date: 1988 Country of Publication: USA xv+509 pp.
Conference Date: 1-3 Dec. 1987 Conference Location: Boston, MA, USA
Availability: Clarke Associates - Europe Ltd., West Molesey, UK
Language: English Document Type: Conference Paper (PA)
Treatment: Experimental (X)
Abstract: A range of film properties was produced through changes in the process conditions. Refractive index, indicative of film composition, varied from 1.5 to 2.0, corresponding to oxygen-rich and silicon-rich conditions respectively. Etch rate in buffered HF was a strong function of the refractive index, with higher index of refraction yielding lower rates. Film stress was tensile and its magnitude was again related to the index of refraction. Other properties evaluated included pinhole density and adhesion to Si. All were relatable directly to the basic film composition. X-ray photoelectron and Auger electron spectroscopy were used to characterize the composition of these films. The Si 2p photoelectron and Si KLL Auger electron spectra were broad for higher refractive index films and upon deconvolution indicated the presence of different silicon-containing species, the natures of which depended upon the actual index of refraction. For stoichiometric films the predominant constituent was **SiO** /sub 2/, and for non-stoichiometric films varying amounts of Si/sub 2/O, **SiO** , Si/sub 2 **O** /sub **3** / and **SiO** /sub 2/ were all present. (9 Refs)
Subfile: A B
Descriptors: adhesion; Auger effect; CVD coatings; insulating thin films; refractive index measurement; silicon compounds; X-ray photoelectron spectra
Identifiers: photochemical vapour deposition; etch rate; tensile stress; X-ray photoelectron spectra; refractive index; pinhole density; adhesion; film composition; Auger electron spectra; deconvolution; Si; **SiO** /sub 2/; Si/sub 2/O; **SiO** ; Si/sub 2/**O** /sub **3** /
Class Codes: A8115H (Chemical vapour deposition); A7820D (Optical constants and parameters); A7865J (Nonmetals); A8250E (Photodissociation, photoionization as studied by luminescence and radiationless transitions); A8280P (Electron spectroscopy for chemical analysis (photoelectron, Auger spectroscopy, etc.)); A8160C (Semiconductors); A7360H (Insulating thin films); B0520F (Vapour deposition); B2550E (Surface treatment and oxide film formation); B7320T (Chemical variables)
Chemical Indexing:
Si sur - Si el (Elements - 1)
SiO2 bin - O2 bin - Si bin - O bin (Elements - 2)
Si2O bin - Si2 bin - Si bin - O bin (Elements - 2)
SiO bin - Si bin - O bin (Elements - 2)
Si2O3 bin - Si2 bin - O3 bin - Si bin - O bin (Elements - 2)

2/9/6 (Item 6 from file: 2)
DIALOG(R)File 2:INSPEC

02969340 INSPEC Abstract Number: A87113415, B87058975
Title: Preparation of SiO **/sub 2/ film by** photo-**induced** chemical vapor deposition **using a deuterium lamp and its annealing effect**
Author(s): Toyoda, Y.; Inoue, K.; Okuyama, M.; Hamakawa, Y.
Author Affiliation: Dept. of Electr. Eng., Fac. of Eng. Sci., Osaka Univ., Japan
Journal: Japanese Journal of Applied Physics, Part 1 (Regular Papers & Short Notes) vol.26, no.6 p.835-4
Publication Date: June 1987 Country of Publication: Japan
CODEN: JAPNDE ISSN: 0021-4922
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)

Abstract: **Silicon** [redacted] **ioxide** thin films have be[redacted] prepared at low temperatures from SiH/sub 4/ and O/sub 2/ by direct **photo** -induced **CVD** using a deuterium lamp. The growth rate is 75 AA/min at 8440 degrees C while no growth occurs below 180 degrees C without deuterium lamp irradiation. UV and VUV light irradiation and an increase of the substrate temperature have effects of increasing the refractive index, and decreasing H incorporation and the amount of the oxide charge. The **photo** -**CVD** films deposited above 180 degrees C show refractive indices of 1.45-1.46. Annealing in an O/sub 2/ environment decreases the infrared absorptions due to Si-H stretching, Si-OH deformation and Si/sub 2/**O** /sub **3** / bondings as well as the oxide charge. The activation energies of the Si-H, the Si-OH deformation, the Si/sub 2/**O** /sub **3** / and the oxide charge obtained from the annealing characteristics are 0.18-0.19, 0.12, 0.19 and 0.12-0.13 eV, respectively. The reduction of Si-OH deformation absorption is considered to be closely related to the reduction of oxide charge.

Subfile: A B

Descriptors: annealing; chemical vapour deposition; infrared spectra of inorganic solids; insulating thin films; molecular vibration in solids; radiation effects; refractive index; silicon compounds

Identifiers: D lamp; UV irradiation; **photo** -induced **chemical vapor deposition** ; annealing effect; low temperatures; SiH/sub 4/; O/sub 2/; **photo** -induced **CVD** ; growth rate; VUV light irradiation; substrate temperature; refractive index; H incorporation; oxide charge; O/sub 2/ environment; infrared absorptions; Si-H stretching; Si-OH deformation; Si/sub 2/**O** /sub **3** / bondings; activation energies; 84 degC; 300 degC; 180 degC; **SiO** /sub 2/ film

Class Codes: A6320 (Phonons and vibrations in crystal lattices); A6855 (Thin film growth, structure, and epitaxy); A7820D (Optical constants and parameters); A7830G (Infrared and Raman spectra in inorganic crystals); A7865J (Nonmetals); A8115H (Chemical vapour deposition); A8140G (Other heat and thermomechanical treatments); B0520F (Vapour deposition)

Chemical Indexing:

SiO2 bin - O2 bin - Si bin - O bin (Elements - 2)

Numerical Indexing: temperature 3.57E+02 K; temperature 5.73E+02 K; temperature 4.53E+02 K

2/9/7 (Item 1 from file: 35)

890122 ORDER NO: AAD85-17280

CHARACTERIZATION OF THE LASER ENHANCED CHEMICAL VAPOR DEPOSITED SILICON DIOXIDE / **INDIUM-PHOSPHIDE INTERFACE (** PHOTO CVD, **MISFETS, XPS, UPS)**

Author: FATHIPOUR, MORTEZA

Degree: PH.D.
Year: 1985
Corporate Source/Institution: COLORADO STATE UNIVERSITY (0053)
Source: VOLUME 46/06-B OF DISSERTATION ABSTRACTS INTERNATIONAL. PAGE 1963. 202 PAGES
Descriptors: PHYSICS, ELECTRONICS AND ELECTRICITY
Descriptor Codes: 0607

Photodissociation of a SiH(,4) and N(,2)O gas mixture with a 193 nm laser beam has been utilized to deposit **SiO** (,2) on InP substrates. Properties of the **SiO** (,2) and its interfaces with the chemically etched surface, as well as the intentionally grown native oxides of InP, were investigated using X-ray photoelectron spectroscopy (XPS), ultra-violet photoelectron spectroscopy (UPS), secondary electron microscopy (SEM), current voltage (I-V), capacitance voltage (C-V) and ellipsometric measurements.

It has been established that in the absence of the SiH(,4) a photoenhanced thermal oxide is grown on the InP surface. The growth rate of this oxidation process increases with laser power, substrate temperature and N(,2)O pressure. The oxide layers contain In(,2)**O** (,**3**) and InPO(,4). The enhanced growth appears to be caused by both excited oxygen species and a photoenhanced surface reactions. The oxides formed at a temperature above

(TURN)450(DEGREES)C hav[redacted] rough surface morphology.

Laser enhanced chemical vapor deposited (LECVD) films have a stoichiometry close to that of the **SiO** (,2). These layers contain some carbon and have a small concentration of nitrogen at the surface. I-V characteristics suggest either a Poole-Frenkel or Schottky emission mechanism for transport through the LECVD-**SiO** (,2) films. At an electric field of (TURN)10('6) v/cm the resistivity of these layers ranged between (TURN)10('13) to 5 x 10('14) ohm-cm. XPS depth profiling of the thin LECVD **SiO** (,2) layers and comparison of the data with those of a sample which had an intentionally grown photoenhanced thermal oxide suggest that the interfacial oxide is composed of InPO(,4). The interfacial oxide is 10 to 20 (ANGSTROM) thick regardless of the growth temperature and is probably the result of exposure to air and not photoenhanced thermal oxidation. SEM studies of several specially prepared surfaces, in conjunction with the XPS, suggest that Ar('+) ion sputtering causes considerable damage to the LECVD-**SiO** (,2) and the InP substrate. This may give false information regarding the oxidation state of indium at the LECVD-**SiO** (,2)/InP interface.

MOS capacitors fabricated using LECVD-**SiO** (,2) dielectrics showed the usual clockwise hysteresis, frequency dispersion of the oxide capacitance and negative flat band shift. All of these features may be associated with electron injection from the semiconductor to the oxide.